AMENDMENTS TO THE CLAIMS

1. (Currently Amended): A method for adjusting the atmosphere within a substantially sealed chamber containing respiring produce, the chamber having controllable inlet means to permit ambient atmosphere to enter the chamber, and outlet means to permit chamber atmosphere to exit the chamber, the method comprising:

(a) monitoring the oxygen concentration within the chamber;

(b) following detection that the oxygen concentration in the chamber has fallen below a predetermined amount, opening the inlet means to admit ambient atmosphere into the chamber so that the amount of oxygen in the chamber increases; and

(c) without monitoring of carbon dioxide concentration within the chamber, continuously removing the carbon dioxide from the chamber atmosphere substantially at a predetermined rate, the predetermined rate having been selected such that a non-zero carbon dioxide concentration is maintained within the chamber atmosphere, which does not substantially exceed a predetermined level, in order to maintain the carbon dioxide concentration within a pre-determined desired range so to inhibit deterioration of the respiring produce.

2. (Cancelled):

3. (Original): A method according to claim 1 wherein said predetermined carbon dioxide removal rate is calculated from a formula derived from a mathematical model of the proportions of the chamber atmosphere subject to the requirement that the oxygen concentration within the chamber be substantially maintained at a predetermined amount.

4. (Cancelled):

5. (Original): A method according to claim 3 wherein said predetermined carbon dioxide removal rate is calculated from a formula that produces a result substantially equal to the result produced by a calculation in accordance with the following formula:

$$a_{CO_2} = r_{CO_2} - \frac{0.79 p_{CO_2} r_{O_2}}{(0.21 - p_{O_2}) - 0.21 p_{CO_2}}$$

where a_{O_2} is the carbon dioxide removal rate; p_{O_2} is the oxygen setpoint, expressed as a proportion; p_{CO_2} is the desired carbon dioxide concentration within the chamber, expressed as a proportion; r_{O_2} is the respiration rate; and r_{CO_2} is the rate of production of carbon dioxide through respiration.

6-9 (Cancelled):

10. (Previously Amended): A method according to claim 1 wherein said carbon dioxide removal is effected by contacting a quantity of carbon dioxide absorbing material with the chamber atmosphere and wherein said carbon dioxide absorbing material is contained in at least one carbon dioxide transmissible container, said at least one carbon dioxide transmissible container being selected so that the rate of carbon dioxide transmission into said at least one carbon dioxide transmissible container is substantially equal to said predetermined carbon dioxide removal rate.

11. (Previously Amended): A method according to claim 3 wherein said carbon dioxide removal is effected by contacting a quantity of carbon dioxide absorbing material with the chamber atmosphere and wherein said carbon dioxide absorbing material is contained in at least one carbon dioxide transmissible container, said at least one carbon dioxide transmissible container is selected so that the rate of carbon dioxide transmission into said at least one carbon

dioxide transmissible container is substantially equal to said predetermined carbon dioxide removal rate.

12. (Previously Amended): A method according to claim 5 wherein said carbon dioxide removal is effected by contacting a quantity of carbon dioxide absorbing material with the chamber atmosphere and wherein said carbon dioxide absorbing material is contained in at least one carbon dioxide transmissible container, said at least one carbon dioxide transmissible container is selected so that the rate of carbon dioxide transmission into said at least one carbon dioxide transmissible container is substantially equal to said predetermined carbon dioxide removal rate.

13-24 (Cancelled):

25. (Original): A method according to claim 1 wherein the inlet means is open for a time that is approximately proportional to the difference between the detected oxygen concentration and an oxygen setpoint.

26. (Original): A method according to claim 25 wherein, if the difference between the detected oxygen concentration and the oxygen setpoint exceeds a predetermined amount, the inlet means remains open until following detection that the oxygen concentration in the chamber has exceeded a predetermined value.

27-40 (Cancelled):

41. (Withdrawn):

42-43 (Cancelled):

44-45 (Withdrawn):

46-48 (Cancelled):

49. (Withdrawn):

50-61 (Cancelled)

62. (Withdrawn):

63-81 (Cancelled):

82. (Withdrawn):

83-116 (Cancelled):

117. (Withdrawn):

118-119 (Cancelled):

120. (Withdrawn):

121. (Cancelled):

122-125 (Withdrawn):

126-128 (Cancelled):

129. (Withdrawn):

130-131 (Cancelled):

132. (Withdrawn):

133-142 (Cancelled)

143. (Currently Amended): A method for adjusting the atmosphere within a chamber containing respiring produce without monitoring of carbon dioxide concentration within the chamber, the method comprising:

(a) flushing the chamber with a purging gas having a low oxygen concentration or no oxygen;

(b) placing a carbon dioxide absorbing material in the chamber so as to absorb the difference between a predicted level of carbon dioxide in the chamber based on the rate of consumption of oxygen by the produce and a desired carbon dioxide level so that a non-zero

carbon dioxide concentration is maintained in the chamber, which does not substantially exceed said desired level, in order to inhibit deterioration of the respiring produce;

(c) substantially sealing the chamber either before or after step (a);

(d) adjusting the oxygen level in the chamber to a level above a desired oxygen setpoint;

(e) permitting the oxygen level in the chamber to degrade to about the oxygen setpoint as a consequence of oxygen consumed by the produce being converted to carbon dioxide;

(f) removing chamber atmosphere from the chamber; and

(g) repeating steps (d), (e) and (f) as required if the oxygen level falls below the oxygen setpoint, to maintain the oxygen level in the region of the oxygen setpoint.

144-145 (Cancelled):

146. (Previously Amended): A method according to claim 143 wherein the rate of removal of carbon dioxide from the chamber is calculated from a formula that produces a result substantially equal to the result produced by a calculation in accordance with the following formula:

$$a_{CO_2} = r_{CO_2} - \frac{0.79 p_{CO_2} r_{O_2}}{(0.21 - p_{O_2}) - 0.21 p_{CO_2}}$$

where a_{O_2} is the carbon dioxide removal rate; p_{O_2} is the oxygen setpoint, expressed as a proportion; p_{CO_2} is the desired carbon dioxide concentration within the chamber, expressed as a proportion; r_{O_2} is the respiration rate; and r_{CO_2} is the rate of production of carbon dioxide through respiration.

147-148 (Cancelled): 149-152 (Cancelled):

153. (Currently Amended): A method for adjusting the atmosphere within a chamber containing respiring produce the method comprising:

(a) maintaining the oxygen concentration in the chamber atmosphere substantially at a predetermined oxygen setpoint; and

(b) without monitoring of carbon dioxide concentration within the chamber, continuously removing the carbon dioxide from the chamber atmosphere substantially at a predetermined rate, the predetermined rate having been selected such that a non-zero carbon dioxide concentration is maintained within the chamber atmosphere, which does not substantially exceed a predetermined amount, thereby to maintain the carbon dioxide concentration within a pre-determined desired range in order to inhibit deterioration of said respiring produce, wherein the oxygen concentration in the chamber atmosphere is maintained substantially at the setpoint by (i) monitoring the oxygen concentration in the chamber and following detection that the oxygen concentration has fallen below the setpoint, or below a tolerance about the setpoint (ii) admitting into the chamber ambient air so that the amount of oxygen in the chamber increases; and (iii) causing or permitting chamber atmosphere to exit the chamber.

154. (Cancelled):

155. (Previously Amended): A method according to Claim 153, wherein said predetermined carbon dioxide removal rate is calculated from a formula that produces a result substantially equal to the result produced by a calculation in accordance with the following formula:

$$a_{CO_2} = r_{CO_2} - \frac{0.79 p_{CO_2} r_{O_2}}{(0.21 - p_{O_2}) - 0.21 p_{CO_2}}$$

where a_{CO_2} is the carbon dioxide removal rate; p_{O_2} is the oxygen setpoint, expressed as a proportion; p_{CO_2} is the desired carbon dioxide concentration within the chamber, expressed as a proportion; r_{O_2} is the respiration rate; and r_{CO_2} is the rate of production of carbon dioxide through respiration.

156. (Previously Amended): A method according to Claim 153, wherein said carbon dioxide removal is effected by contacting a quantity of carbon dioxide absorbing material with the chamber atmosphere and wherein said carbon dioxide absorbing material is contained in at least one carbon dioxide transmissible container, said at least one carbon dioxide transmissible container being selected so that the rate of carbon dioxide transmission into said at least one carbon dioxide transmissible container is substantially equal to said predetermined carbon dioxide removal rate.

157. (Previously Added): A method according to Claim 153, wherein said predetermined carbon dioxide removal rate is calculated from a formula that produces a result substantially equal to the result produced by a calculation in accordance with the following formula:

$$a_{CO_2} = r_{CO_2} - \frac{0.79 p_{CO_2} r_{O_2}}{(0.21 - p_{O_2}) - 0.21 p_{CO_2}}$$

where a_{CO_2} is the carbon dioxide removal rate; p_{O_2} is the oxygen setpoint, expressed as a proportion; p_{CO_2} is the desired carbon dioxide concentration within the chamber, expressed as a proportion; r_{O_2} is the respiration rate; and r_{CO_2} is the rate of production of carbon dioxide through respiration.

158. (Previously Added): A method according to Claim 157, wherein said carbon dioxide removal is effected by contacting a quantity of carbon dioxide absorbing material with the chamber atmosphere and wherein said carbon dioxide absorbing material is contained in at least one carbon dioxide transmissible container, said at least one carbon dioxide transmissible container being

selected so that the rate of carbon dioxide transmission into said at least one carbon dioxide transmissible container is substantially equal to said predetermined carbon dioxide removal rate.

159. (Previously Added): A method according to Claim 153, wherein said carbon dioxide removal is effected by contacting a quantity of carbon dioxide absorbing material with the chamber atmosphere and wherein said carbon dioxide absorbing material is contained in at least one carbon dioxide transmissible container, said at least one carbon dioxide transmissible container being selected so that the rate of carbon dioxide transmission into said at least one carbon dioxide transmissible container is substantially equal to said predetermined carbon dioxide removal rate.

160. (Currently Amended): A method for adjusting the atmosphere within a chamber containing respiring produce, the method involving monitoring the oxygen concentration within the chamber without monitoring the carbon dioxide concentration within the chamber, the method comprising the steps of maintaining the oxygen concentration in the chamber atmosphere substantially at a predetermined oxygen setpoint, predicting the carbon dioxide concentration in the chamber that would be expected to result in the absence of any adjustment to the carbon dioxide concentration, and independently adjusting the carbon dioxide concentration in the chamber by determining the difference between the predicted level of carbon dioxide in the chamber and a desired non-zero carbon dioxide equilibrium concentration, and installing in the chamber one or more containers of hydrated lime of predetermined carbon dioxide transmissibility whereby carbon dioxide is absorbed into the containers so that the concentration of carbon dioxide in the chamber reaches the desired non-zero equilibrium concentration, in order to inhibit deterioration of the respiring produce~~equilibrium point, the method performed with monitoring the oxygen concentration within the chamber and without monitoring of the carbon dioxide concentration within the chamber~~.